Practitioner's Docket No. MPI00-343P1RM

REMARKS

The specification has been amended to remove browser executable code. Claims 3 and 5 have been cancelled herein, and claims 4, 6, 7 and 8 have been amended. Support for the claim amendments lies in the original claims and specification as filed. For example, see the specification at page 12, lines 12-25, and lines 29-37, and page 16, lines 13-20. No new matter has been added by virtue of the amendments.

The specification was objected to for the presence of embedded hyperlinks in the text. Amendments to the specification are set forth herein to address the Examiner's objection, and remove the browser-executable code. Reconsideration and withdrawal of the objection is respectfully requested.

Rejection under 35 USC § 101

Claims 1-11 were rejected under 35 USC 101 as purportedly lacking support of either a specific or substantial asserted utility or a well established utility. Applicants respectfully traverse the rejection.

Applicants respectfully submit the Examiner's imposition of the present rejection is improper in view of the utility guidelines and MPEP §2701. As acknowledged by the Examiner, the instant application has provided a description of an isolated nucleic acid sequences of SEQ ID NO:1 and SEQ ID NO:3, encoding an acyltransferase protein and the amino acid sequence of SEQ ID NO:2. In addition, the specification sets forth use of the described compositions in methods for diagnostics and identification of therapeutics for disorders, including, for example, metabolic disorders. Applicants submit the utility of diagnostics and screening methods for identification of therapeutics is a well established and accepted substantial and real world utility in the pharmaceutical industry. Applicants' assertion of utility is based, not only on the homology of the identified compositions as an acyltransferase, but is supported in conjunction with scientific exemplification set forth in the Examples demonstrating specific expression patterns as well as upregulation in animal models where modulation of cholesterol and triglyceride levels is present. Further, irrespective of the asserted utility in the present specification, Applicants submit the disclosure of a new human acyltransferase would be well understood to those of skill in the art to have an immediately recognizable, well established utility as a composition useful for identification of novel diagnostics and therapeutics for assessment and modulation of human lipid biosynthesis and metabolism of bioactive lipids.

While the Examiner recognizes acyltransferase is a plausible and credible asserted utility, it is asserted such utility is not specific or substantial, because one of skill in the art may not know which acyl group is being transferred to what acceptor. However, Applicants submit the specification as filed in conjunction with the knowledge of those of skill in the art would equip one to readily demonstrate the acyltransferase activity of the claimed compositions. For example, see, e.g., page 1, lines 16-38 where

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the background section clearly describes the biochemistry of acyltransferases involved in biosynthesis as clearly worked out and easily assessed. Still further, Applicants disclosure identifies ACTR as a human GPAT (see Example 1) and identifies preferable assays for assessment of activity of acyltransferase activity (see, eg page 53, lines 24-27).

Applicants submit the Examiner has not met the requisite standard of the Utility Guideline requirements to establish a prima facie showing of no specific and substantial credible utility to rebut Applicants' assertion of utility of the claimed compositions in diagnostic and/or identification of therapeutics for metabolic disease. Such a showing requires the Examiner **must**:

> *...establish that it* ***is more likely than not*** *that a person of ordinary skill in the art would not consider that any utility asserted by the applicant would be specific and substantial. The prima facie showing must contain the following elements:*
>
> *(A) An explanation that clearly sets forth the reasoning used in concluding that the asserted utility for the claimed invention is neither both specific and substantial nor well-established;*
>
> *(B)* ***Support for factual findings*** *relied upon in reaching this conclusion; and*
>
> *(C) An evaluation of* ***all relevant evidence of record****, including utilities taught in the closest prior art.* See MPEP 2107.02

Applicants submit the Examiner has not made a sufficient showing to establish more likely than not the utility set forth in the present specification would not be specific or substantial, as sufficient support or factual findings have not been relied upon to make such a showing to rebut Applicant's assertion that the use in diagnostics and/or identification of therapeutics would more likely than not be useful. Rather, the Examiner relies on general arguments to back up the claim that Applicant's original assertion is neither specific nor substantial.

Thus, Applicants submit the specification as filed is sufficient to support a well established and/or credible, substantial, and specific asserted utility so as to meet the requisite standard for utility under the present guidelines of the USPTO that the presently claimed compositions are useful in the identification of diagnostics and methods for identification of therapeutics for metabolic diseases. Applicants thus respectfully submit the Examiner's maintenance of the rejection under 35 USC §101 are improper. Reconsideration and withdrawal is respectfully requested.

Rejections under 35 USC § 112

Claims 1-11 were rejected under 35 USC 112, first paragraph. The Examiner asserts since the application lacks a specific or substantial asserted utility or a well established utility, one skilled in the art would not know how to use the claimed invention. Applicants respectfully traverse the rejection. For the reasons discussed *supra*, the presently pending claims do in fact have a specific substantial asserted utility

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which would be well recognized to one of skill in the art at the time of filing of the applications. Reconsideration and withdrawal of the rejection is requested.

Claims 3, and 4-11 were rejected under 35 USC 112, first paragraph as containing subject matter which was not described in the specification so as to convey to one of skill in the art Applicant was in possession of the claimed invention. The rejection is traversed.

Claims 3 and 5 has been cancelled herein. The Examiner asserts only one representative species is disclosed in the specification and no structure/function/activity relationship is disclosed, and no additional characteristic or property is disclosed other than sequence identifiers to limit the predictability of the structure.

Factors which can be used to determine if sufficient evidence of possession of the an invention has been furnished in the disclosure of the application include: level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional charateristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. (See, MPEP 2163 Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, para. 1, "Written Description" Requirement) Additionally, the Written Description Guidelines acknowledges that written description is satisfied where a disclosure of any combination of identifying characteristics such as structure, function, activity, etc. that distinguish the claimed invention from other materials would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient. See MPEP 2163.

Applicants submit the level of skill in the art is high, and the disclosure of the application as filed provides sufficient description relating to the generation of variant and fragment sequences, it is routine in the art to construct derivatives which are at least 95% identity to a given sequence or comprise at least 50 consecutive amino acids of a given sequence (e.g., SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:2) (see, e.g., specification at page 12, lines 12-25, and lines 29-37, page 16, lines 13-20). Still further, Applicants' description sets forth the claimed acyltransferase activity, as well as methods for assessing such activities (see, e.g., page 53, lines 24-27).

Furthermore, Applicants point out that independent claim 4, has been amended such that the claim recites not only homology limitations relating to structural limitations of variants, or fragments but also recite such sequence have "acyltransferase activity," thus reciting a combination of at least a partial structural features of a genus of polypeptides, as well as the biological activities of the polypeptides. Applicants thus submit the written description requirement under 35 USC § 112 has been met, and respectfully request reconsideration and withdrawal of the rejection.

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Claims 3-11 were rejected under 35 USC 112, first paragraph as not enabling. The rejection is traversed.

Claims 3 and 5 have been cancelled. Applicants submit the application as filed does in fact provide each of the necessary elements to carry out the subject matter of now pending claims 4, and 6-11. Applicants have provided the nucleic acid sequences of SEQ ID NO:1 and SEQ ID NO:3, as well as the amino acid sequence of SEQ ID NO:2. Additionally, it is routine in the art to construct derivatives comprising 50 consecutive amino acids, and/or variants comprising sequences which are at least 95% identical to the provided sequences. Still further, Applicants have additionally provided description for creating variants having 95% identity to SEQ ID NO:1, SEQ ID NO:3 and peptide variants having at least 95% identity to SEQ ID NO:3, or creating fragments of SEQ ID NO:2 as well as nucleic acids encoding polypeptides having at least 50 consecutive amino acids of SEQ ID NO:2 (see, e.g., specification at page 12, lines 12-25, and lines 29-37, page 16, lines 13-20). Yet further, Applicants' description sets forth the claimed acyltransferase activities, as well as methods for assessing such activities (see, e.g., page 53, lines 24-27). The Examiner's rejection is apparently based on the numerous possibilities of creation of various nucleic acids encoding polypeptides comprising variants of at least 95% identity or fragments having at least 50 consecutive amino acid sequences of SEQ ID NO: 2 which could be generated, and testing whether these could each be assessed for activity. Applicants submit, however, the number of possibilities of testing alone is not sufficient to maintain the present enablement rejection, as the tools to carry out such generation and/or identification of peptides, testing of bioactivites and identification of polypeptides comprising at least 50 consecutive amino acids having an acyltransferase activity are in fact readily available to those of skill in the art in view of Applicants' disclosure and the knowledge of those skilled in the art. Reconsideration and withdrawal of the rejection is thus respectfully requested.

Claims 3, 5, and 6-11 were rejected under 35 USC 112, second paragraph as indefinite. The rejection is traversed.

Claims 3 and 5 have been cancelled herewith, and claims 6-11 no longer depend from the cancelled claims. It is believed the cancellation of these claims renders the rejection moot. Reconsideration and withdrawal of the rejection is requested.

Rejections Under 35 USC § 102

Claims 3-6, 8 and 10 were rejected under 35 USC 102(b) as anticipated by Shin et al.

Claims 3-6, and 8-11 were rejected under 35 USC 102(b) as anticipated by Bhat et al.

Claims 4, 5, 6, 8, and 10 were rejected under 35 USC 102(a) as anticipated by Hedge er al.

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Each of the rejections under 35 USC §§ 102 are traversed. For the sake of brevity, the rejections under 35USC §§102 are addressed collectively. Claims 3 and 5 are cancelled herein, and Applicants have amended claim 4 herein, to recite:

nucleic acid sequences which are *at least 95% identical to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3, or a complement thereof,* or *comprising a fragment of at least 150 nucleotides of a nucleic acid comprising the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3, or a complement thereof;* and amino acid sequences which are *at least 95% identical to the amino acid sequence of SEQ ID NO:2,* or *comprising the amino acid sequence of SEQ ID NO:2, wherein the fragment comprises at least 50 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:2*;

further, each of the nucleic acids recited have the limitation: *wherein the nucleic acid encodes a polypeptide having acyltransferase activity.* .

Shin et al. teach a murine acyltransferase that is 63% and 74.8% identical to SEQ ID NO:1 and SEQ ID NO:3; and the amino acid sequence is 93% identical to SEQ ID NO:2. Bhat et al. teach a nucleic acid sequence that is 75% homologous to SEQ ID NO:3 and an amino acid sequence that is 92.4% homologous to SEQ ID NO:2. Hedge et al teach a nucelic acid sequence which is 97% homologous to residues 2229-2795 of SEQ ID NO:1 and contains over 450 contiguous nucleotides of SEQ ID NO:1. However, Applicants respectfully submit none of the references of Shin, Bhat, or Hedge disclose compositions which are within the scope of the presently amended claims. Neither Shin nor Bhat disclose sequence which meet the identity limitations. Additionally, Hedge does not disclose nucleic acids which encode polypeptides having acyltransferase activity. Reconsideration and withdrawal of the rejections under 35 USC §§ 102 is respectfully requested.

Rejection under 35 USC § 103

Claims 7 and 11 were rejected under 35 USC § 103 as unpatentable over Bhat et al in view of the state of the art with regard to protein preparation as fusion protein for easy purification. The rejection is traversed.

As discussed above for the rejections under 35 USC §§ 102, the disclosure of Bhat et al. comprises a nucleic acid sequence that is 75% homologous to SEQ ID NO:3 and an amino acid sequence that is 92.4% homologous to SEQ ID NO:2. The disclosure does not describe nucleic acids which meet the limitations of the present claims. Thus, Bhat et al is not a proper primary reference which would provide motivation to one of skill in the art to develop a recombinant method to produce a polypeptide of claims 7 and 11, which require production of polypeptides comprising sequences which are *at least 95% identical to SEQ ID NO:2; comprise at least 50 contiguous amino acids of SEQ ID NO:2;* or are encoded by a nucleic acid which is *at least 95% identical to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3,* or *comprising a fragment of at least 150 nucleotides of a nucleic acid comprising the nucleotide*

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sequence of SEQ ID NO:1 or SEQ ID NO:3. Thus, Applicants submit the present claimed subject matter would not be obvious to one of skill in the art in view of the state of the art with the disclosure of Bhat et al. Reconsideration and withdrawal of the rejection is respectfully requested.

In view of these amendments and remarks, Applicants respectfully submit that the objections and the rejections of the claims under 35 USC §§ 101, 112, 102 and 103 are now overcome and that this application is now in condition for allowance. Early notice to this effect is solicited. If a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

This paper is being filed timely as a request for a two month extension of time is filed concurrently herewith. It is believed no additional fees or extensions of time are required. In the event any additional fees or extensions of time are necessary, the undersigned hereby authorizes the requisite fees to be charged to Deposit Account No. 501668.

Entry of the remarks made herein is respectfully requested.

Respectfully submitted,

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